



**İZMİR UNIVERSITY**  
**Faculty of Art and Science**  
**Department of Mathematics and Computer Science**

**İzmir**  
**Applied Mathematics and Computer Science**  
**Seminars**

**May 06, 2010 Thursday, 13:30**

**Operator Splitting Methods for Partial Differential  
Equations**

**Speaker:**

**Assoc. Prof. Dr. Gamze TANOGLU**  
**Department of Mathematics**  
**Izmir Institute of Technology**

**Place:**

**İZMİR UNIVERSITY**  
**FACULTY OF ART AND SCIENCE,**  
**DEPARTMENT OF MATHEMATICS AND COMPUTER**  
**SCIENCE**  
**ROOM: A302**



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**Operator Splitting Methods for Partial Differential Equations**

**Assoc. Prof. Dr. Gamze Tanoglu**  
Department of Mathematics,  
Izmir Institute of Technology

**Abstract**

Operator splitting method is a widely used procedure in the numerical solution of large systems of partial differential equations. It allows us to replace an initial value problem with a sequence of simpler problems, solved successively in each time step. The general idea behind splitting is breaking down a complicated problem into smaller parts for the sake of time stepping, such that the different parts can be solved efficiently with suitable integration formulas. In this talk, we will give the brief introduction about the various orders of operator splitting methods as well as their convergence analysis. Finally, the several numerical examples are given to illustrate the efficiency of the methods.